

P-W

DUVAL CORP. #9 STATE 1-57 NO PERMIT  
NW SE Sec. 10-T18N-R27E APACHE COUNTY

1-57

County Apache  
Area Holbrook Basin  
Lease No. State

Well Name Duval Corporation #9 State

Location NW SE Sec 10 Twp 18N Range 27E Footage 2200' FSL - 1980' FEL  
GL Spud Completed Total  
Elev 6515' GL 6520' KB Date 12-11-63 1-20-64 Depth 2512'

Contractor \_\_\_\_\_

Casing Size 4" Depth 2060' Cement \_\_\_\_\_  
Drilled by Rotary \_\_\_\_\_  
Cable Tool \_\_\_\_\_  
Production Horizon \_\_\_\_\_  
Initial Production \_\_\_\_\_

REMARKS Drilled as a potash test.

See file for Core Lithology. (Footage 2303.0 - 2512.0)

Elec  
Logs Gamma Ray-Neutron;  
Applic. Plugging Completion  
to Plug Record x Report x

Sample Log  
Sample Descript.  
Sample Set P-1332  
Core Analysis  
DSTs

Water well accepted by \_\_\_\_\_

Bond Co. & No. None

Bond Am't \$ \_\_\_\_\_ Cancelled \_\_\_\_\_ Date  
Organization Report \_\_\_\_\_

Filing Receipt \_\_\_\_\_ Dated \_\_\_\_\_ Well Book x Plat Book x

API No. 02-001-05058 Loc. Plat \_\_\_\_\_ Dedication None

Permit Number None Date Issued \_\_\_\_\_

1-57

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG																	
DESIGNATE TYPE OF COMPLETION:																	
New Well	<input checked="" type="checkbox"/>	Work-Over	<input type="checkbox"/>	Deepen	<input type="checkbox"/>	Plug Back	<input type="checkbox"/>	Same Reservoir	<input type="checkbox"/>	Different Reservoir	<input type="checkbox"/>	Oil	<input type="checkbox"/>	Gas	<input type="checkbox"/>	Dry	<input type="checkbox"/>
DESCRIPTION OF WELL AND LEASE																	
Operator <u>DUAL CORPORATION</u>						Address <u>4715 E. FT. LOWELL RD. TUCSON, ARIZONA</u>											
Lease Name						Well Number <u>9</u>						Field & Reservoir					
Location <u>2200' NORTH &amp; 1980' WEST OF SE COR SEC 10 T18N, R27E</u>																	
County <u>Apache</u>		Permit number				Date Issued				Previous permit number				Date Issued			
Date spudded <u>12/11/63</u>		Date total depth reached				Date completed, ready to produce <u>1/20/64</u>				Elevation (DF, RKB, RT or Gr.) feet				Elevation of casing hd. flange feet			
Total depth <u>2512</u>		P.B.T.D.				Single, dual or triple completion?				If this is a dual or triple completion, furnish separate report for each completion.							
Producing interval (s) for this completion						Rotary tools used (interval)						Cable tools used (interval)					
Was this well directionally drilled?						Was directional survey made?						Was copy of directional survey filed?					
Type of electrical or other logs run (check logs filed with the commission) <u>GAMMA RAY - NEUTRON</u>												Date filed					
CASING RECORD																	
Casing (report all strings set in well—conductor, surface, intermediate, producing, etc.)																	
Purpose		Size hole drilled		Size casing set		Weight (lb./ft.)		Depth set		Sacks cement		Amt. pulled					
TUBING RECORD				LINER RECORD													
Size in.		Depth set ft.		Packer set at ft.		Size in.		Top ft.		Bottom ft.		Sacks cement		Screen (ft.)			
PERFORATION RECORD								ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD									
Number per ft.		Size & type		Depth Interval						Am't. & kind of material used				Depth Interval			
INITIAL PRODUCTION																	
Date of first production						Producing method (Indicate if flowing, gas lift or pumping—if pumping, show size & type of pump:)											
Date of test		Hrs. tested		Choke size		Oil prod. during test bbls.		Gas prod. during test MCF		Water prod. during test bbls.		Oil gravity * API (Corr)					
Tubing pressure		Casing pressure		Cal'd rate of Production per 24 hrs.		Oil bbls.		Gas MCF		Water bbls.		Gas-oil ratio					
Disposition of gas (state whether vented, used for fuel or sold):																	
<p>CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the.....of the.....(company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.</p>																	
Date									Signature								
									<p style="text-align: center;"><b>STATE OF ARIZONA OIL &amp; GAS CONSERVATION COMMISSION</b></p> <p style="text-align: center;">Well Completion or Recompletion Report and Well Log</p> <p style="text-align: center;">Form No. P-7      File two copies</p>								

[illegible]

**DUVAL CORPORATION**  
INTER-OFFICE MEMORANDUM

1-57

FROM Navajo DATE 1/29/64  
TO Esperanza ATTENTION B. G. Messer  
SUBJECT: Duval #9 <sup>2195' FSL</sup> <sup>3320 FNL</sup> SEC. 10, T.18N., R.27E., (State)

Date Started: 12/11/63  
Completed: 1/20/64  
El. G.L.: 6515'  
" KB: 6520'  
T.D.: 2512'  
Casing: 2060  
El Top. Coco.: 4537'  
" " Halite: 4159'  
" " Sylrite: 4065'

6515  
4159  
2356

6515  
4065  
2450

6515 GR  
1978  
4538  
x

3320  
1980  
1400

3320  
1980  
1308

Hole No.

9

Interval (feet)

Ground elevation 6515'

0-182  
182-745  
745-  
1318-  
1495  
1785-  
1820-1978  
1978-2263  
2263-  
2341

Formation or Member

Dune Sand  
Bidahochi  
Upper Petrified Forest  
Lower Petrified Forest  
Top of greenish-gray unit  
Shinarump  
Lower Wupatki  
Coconino  
Supai  
Top of 1st marker Anhydrite

10

Ground elevation 5790'

C-10  
10-97  
97-119  
119-  
407  
638-  
675-917  
917-1262  
1262-  
1348

Dune Sand  
Upper Petrified Forest  
Sonsela  
Lower Petrified Forest  
Top of greenish-gray unit  
Shinarump  
Lower Wupatki  
Coconino  
Supai  
Top of 1st marker Anhydrite

11

Ground elevation 6095'

C-33  
33-295  
295-  
493-  
753  
1125-1218  
1218-1516  
1613

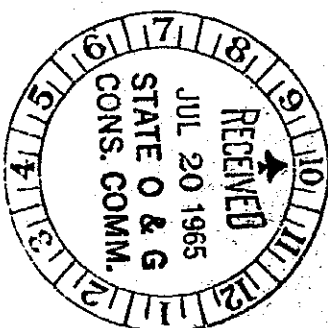
Dune Sand  
Bidahochi  
Upper Petrified Forest  
Lower Petrified Forest  
Top greenish-gray unit  
Lower Wupatki  
Coconino  
Top of 1st marker Anhydrite

12

Ground elevation 5670'

C-46  
46-175  
175-181  
181-  
480  
730 (gradational)-  
802-951  
951-1257  
1257-  
1347

Dune Sand  
Upper Petrified Forest  
Sonsela  
Lower Petrified Forest  
Top greenish-gray unit  
Shinarump  
Lower Wupatki  
Coconino  
Supai  
Top of 1st marker Anhydrite



1-57

Form 3  
2M Sheets 5-54

DUVAL SULPHUR & POTASH COMPANY

POTASH DIVISION  
CARLSBAD, NEW MEXICO

WHILE WE BELIEVE THIS INFORMATION TO BE  
CORRECT, WE MAKE NO REPRESENTATION WITH  
RESPECT TO, NOR DO WE ASSUME ANY RESPONSIBILITY  
FOR, THE CORRECTNESS THEREOF.  
DUVAL CORPORATION

CORE LITHOLOGY

WELL NO. 9

DEPTH (Feet)		INTERVAL		ESTIM. %		DESCRIPTION
From	To	Feet		Shale	P	
						Abbreviations: H - Halite K - Kieserite
						A - Anhydrite Le- Leonite
						P- Polyhalite K - Kainite
						S - Sylvite L - Langbeinite
						C - Carnallite Gyp. - Gypsum
						f.g. - fine grained med. g. - medium grained
						c.g. - Coarse grained clr. - clear
						incl. - inclusions occ. - occasional
						irreg. - irregular V. - very
2303 0						Start Coring
2303 0	2308 0	5	0	70	30	Silt-clay, lt., gray-tan, Gyp. indurated, hard; few A/Gyp. stringers.
2308 0	2311 7	3	7	90	10	Clay-silt, V. hard, lt. to dark brn.; some small to V. large lt. gray to white Gyp. blebs & stringers, 0.3' 80% Gyp. zone at 2308.1'.
2311 7	2312 5	0	8	70	30	Silt-clay, V. hard, lt. red-brn.; numerous large white Gyp. incls. decr. down from 50% at top to 10% at base.
2312 5	2315 1	2	6	90	10	Clay-silt, med. hard, red-brn.; few white to gray Gyp. blebs. decreasing down from 15% at top to 5% at base.
2315 1	2320 8	5	7	-	100	A, dark gray, some V. small clear selenite.
2320 8	2321 2	0	4	-	100	Gyp. lt. gray to white.
2321 2	2338 3	17	1	90	10	Clay-silt, tan-dark brn.; some white to lt. gray A/Gyp. incls.; 0.2' band at 2325.4', 2328.7', 2333.0' & 2337.0' at 0.4' above base.
2338 3	2338 8	0	5	-	100	Gyp., H lt. gray-clr., milky.
2338 8	2340 5	1	7	95	5	Clay-silt, lt. to dark brn., med. soft; some small to med. white Gyp. blebs.
2340 5	2341 1	0	6	-	100	Gyp. lt. gray-clr-milky.

DUVAL SULPHUR & POTASH COMPANY

WELL NO. 9

CORE LITHOLOGY

PAGE NO. 2

DEPTH (Feet)		INTERVAL		ESTIM. %		DESCRIPTION
From	To	Feet		Shale	KA	
2341 1	2343 3	2	2	98	2	Clay-silt, med. to dark brn., med. soft; 45° fracture plane at 2342.5'; few white Gyp. blebs.
2343 3	2344 4	1	1	10	90	A/Gyp., lt. to V. dark gray, 45° fracture planes at top & 2344.1', few med. brn. clay-silt incls. in lower half.
2344 4	2346 2	1	8	92	8	Clay-silt, med. to dark brn., med. soft to hard; some irreg. white A/Gyp. veinlets & blebs.
2346 2	2361 1	14	9	-	100	A, med. to dark gray; few V. thin red-brn. clay stringers in top 2', parting at 2347.4'
2361 1						Top Of Salt.
2361 1	2361 6	0	5	-	80	A, gray; irreg. vertical zone H, pink, f.g. schistose at top.
2361 6	2363 1	1	5	90	5	Clay-silt, brn.-red, soft; few irreg. H, f. veinlets; occ. large white A bleb in lower half.
2363 1	2363 6	0	5	40	3	H, med. g.; numerous large dark brn., irreg. clay-silt incls.; 0.1' band at 2363.3', few small white A incls.
2363 6	2364 3	0	7	60	15	Clay-silt, dark brn., soft; some H, f.g. to med.; 0.1' white A band at top.
2364 3	2364 9	0	6	15	-	H, f.g. to med.; some med. to large brn. clay-silt incls. parting at 2364.8'.
2364 9	2365 2	0	3	95	-	Clay-silt dark brn., soft; occ. H, fibrous veinlet.
2365 2	2367 9	2	7	20	2	H, f.g. to med.; numerous large brn. clay-silt incls. decreasing down from 30% at top to 10% at base; 0.2' zone 80% clay at 2366.4'; few white A stringers in bottom foot.
2367 9	2370 0	2	1	2	-	H, clr., med. frw small red-brn. clay-silt stringers.
2370 0	2373 7	3	7	8	1	H, med.; numerous small to med. lt. brn. clay-silt incls; occ. small white A blebs & stringers.
2373 7	2374 0	0	3	90	-	Clay-silt, dark brn., little gray soft; few H fibrous veinlets.



# DUVAL SULPHUR & POTASH COMPANY

WELL NO. 9

CORE LITHOLOGY

PAGE NO. 3

DEPTH (Feet)		INTERVAL		ESTIM. %		DESCRIPTION
From	To	Feet		Shale	FA	
2374 0	2377 2	3 2		6	-	H, med. g.; some brn. clay-silt incls.
2377 2	2379 1	1 9		3	-	H, med., clr., lower half; few small brn. clay-silt incls. grading out down.
2379 1	2382 0	2 9		1	1	H, V. clr., f. to c.g.; V. few small brn. clay-silt incls. & white A stringers.
2382 0	2384 5	2 5		-	96	A, gray.; occ. H, f.g. intergrowth in lower half.
2384 5	2386 7	2 2		4	-	H, med.; some small dark brn. clay-silt incls., 1/2" band at top.
2386 7	2388 5	1 8		2	-	H, clr., f.g. to med.; few small red-brn. clay-silt incls.
2388 5	2392 0	3 5		1	1	H, V. clr., med.; occ. small white A blebs & red-brn. clay incls.
2392 0	2392 5	0 5		2	2	H, pink, med.; few small gray A stringers in lower third; occ. small brn. clay stringer.
2392 5	2393 1	0 6		30	-	H, med.; many small hard brn. gray clay-silt incls.
2393 1	2393 7	0 6		65	-	Clay-silt, dark brn., soft; some H, f.g. incls. slickenside at 2393.4' with 0.1' bank pink H below.
2393 7	2395 5	1 8		25	2	H, med. g.; many large brn. clay-silt incls.; V. few small white A stringers.
2395 5	2395 8	0 3		75	-	Clay-silt dark brn., V. soft; <sup>some</sup> H pink fibrous veinlets.
2395 8	2404 9	9 1		8	2	H, f.g. to med.; some med. to large brn. clay-silt incls., 0.2' band at 2406.1'; few white A blebs.
2404 9	2410 9	6 0		4	2	H, f.g. to med.; few small to med. brn. clay-silt incls. grading out down; few small gray A stringers grading in down in bottom third.
2410 9	2411 7	0 8		-	25	H, clr., med.; gray A bands, 1/2" at top & at 2411.1', 0.1' band at 2411.3', few other small gray A incls.
2411 7	2413 8	2 1		-	100	A, gray.
2413 8	2417 9	4 1		2	85	A, lt. gray, many, small H f.g. intergrowths, 0.2' zone brn. clay partings at 2417.1'.

## DUVAL SULPHUR &amp; POTASH COMPANY

WELL NO. 9

CORE LITHOLOGY

PAGE NO. 4

DEPTH (Feet)		INTERVAL		ESTIM. %		DESCRIPTION
From	To	Feet		Shale	RA	
2417 9	2419 6	1 7		4	3	H, f.g. to med.; some small brn. clay-silt incl.; few med. to large gray A stringers, grading in down.
2419 6	2421 1	1 5		12	1	H, f.g.; many small to V. large lt. brn. clay-silt incl.; occ. white A stringer in top half.
2421 1	2422 7	1 6		40	-	H, f.g.; many V. large & V. small brn. clay-silt incl., 0.4' 30% clay zone at base.
2422 7	2424 7	2 0		8	-	H, f.g. to med.; some med. to large dark brn.-red clay silt incl.; occ. V. small white A stringer.
2424 7	2431 9	7 2		3	-	H, clr., med. to c.g.; few small to med. dark brn. clay-silt incl. & stringers; occ. V. small white A bleb.
2431 9	2433 7	1 8		6	1	H, med. g.; some small brn. clay-silt incl.; occ. white A stringers.
2433 7	2435 3	1 6		2	4	H, clr. to pink, med. to V. c.g.; few white to gray A stringers, 0.2' 30% A zone at base; few small brn. clay-silt incl.
2435 3	2437 2	1 9		40	2	H, c.g.; many V. large red-brn. clay-silt incl., 0.4' 30% zone at 2435.6'; few thin white A stringers in top half foot.
2437 2	2441 6	4 4		15	1	H, med. to c.g.; some small to large red-brn. clay-silt incl. incr. down from 5% at top to 25% at base; V. few small white A blebs.
2441 6	2445 0	3 4		8	2	H, c.g.; some med. to large red-brn. clay-silt incl.; few white A blebs & stringers.
2445 0	2447 8	2 8		15	-	H, med. to V. c.g.; many small to large red-brn. clay-silt incl., 0.2' 70% zone at 2446.7'; occ. V. small white A bleb.
2447 8	2451 3	3 5		4	2	H, tan-clr., med. g.; few dark brn. to red clay-silt incl. & stringers; few small gray A blebs, grading out down.
2451 3	2453 0	1 7		4	-	H, med. to V. c.g.; few small to med. dark brn. clay-silt incl. thin clay parting at 2452.1'.

# DUVAL SULPHUR & POTASH COMPANY

WELL NO. 9

CORE LITHOLOGY

PAGE NO. 5

DEPTH (Feet)		INTERVAL		ESTIM. %		DESCRIPTION
From	To	Feet		Shale	KA	
2453 0	2454 75	1 75		1	3	H, V. clr. to pink, V. c.g.; few irreg. gray A stringers; occ. V. small brn. clay-silt incl.
2454 75	2455 50	0 75		-	25	H, clr. to pink, c.g.; few large gray A stringers, 0.2' of 80% A at base.
2455 50	2456 90	1 40		-	10	H, V. clr. to pink, c.g. to V. c.g.; occ. small to large gray A blebs & stringers, increasing from 2% at ends to 20% at center.
2456 90	2457 75	0 85		8	-	H, clr., V. c.g.; clay-silt, lt. brn., hard, increasing down from 0% at top to 15% 0.2' above base, 0.1' zone of 60% clay 0.3' above base; occ. V. small pink S bleb near base. Est. K <sub>2</sub> O/S = less than 1%.
2457 75	2458 85	1 10		5	-	H, clr., V. c.g.; S, pink to milky, V. c.g., mostly in top half; some clay-silt incl. & stringers, tan-green, grading in down. Est. K <sub>2</sub> O/S = 18%
2458 85	2460 25	1 40		1	4	H, clr, med. to c.g.; numerous V. small gray A blebs & stringers; some V. small to large red-rimmed milky S blebs; occ. small gray clay incl. Est. K <sub>2</sub> O/S = 2%
2460 25	2461 55	1 30		-	3	H, V. clr., c.g.; few gray A stringers; occ. small to med. red-rimmed milky S bleb. Est. K <sub>2</sub> O/S = 1%
2461 55	2462 60	1 05		-	2	H, V. clr., med. c.g.; 0.4' milky S at top, occ. small milky S blebs in lower half; occ. gray A stringers, grading in down. Est. K <sub>2</sub> O/S = 24%
2462 60	2464 00	1 40		-	1	H, V. clr., med. to c.g.; occ. small to large pink milky S blebs, grading in down; occ. V. small gray A stringers. Est K <sub>2</sub> O/S = 2%
2464 0	2467 7	3 7		40	1	H, f.g. to med.; many med. to V. large red-brn. clay-silt incl., partings at 2466.2' & 2466.9'; occ. thin white A stringer.
2467 7	2468 6	0 9		75	-	Clay-silt, lt. to dark brn.; H, f.g. incl. in top & bottom quarters.

DUVAL SULPHUR & POTASH COMPANY

WELL NO. 9

CORE LITHOLOGY

PAGE NO. 6

DEPTH (Feet)		INTERVAL		ESTIM. %		DESCRIPTION
From	To	Feet		Shale	MA	
2468	2471	3	5	5	2	H, med. g.; some small to med. red-brn. clay-silt incls.; few small to med. white-gray A stringers.
2471	2474	3	1	2	2	H, clr. to V. in bottom half; few small brn. clay-silt incls. & white A Stringers.
2474	2475	1	2	3	4	H, clr.; few small to large white A stringers & few red-brn. clay-silt incls. grading out to middle.
2475	2479	3	8	-	3	H, V. clr.-pink; few small to med. white A stringers, 0.1' band at 2473.1'; occ. V. small brn. clay incl.
2479	2481	1	7	25	6	H, med.; many small to large red-brn. clay-silt incls. incr. down from 2% at top to 30% at base, 0.1' bands at 2480.3' & 2481.0'; 0.1' white A band at 2479.6'.
2481	2484	3	0	80	-	Clay-silt dark red-brn., soft; many H med. incls. & vertical schistose veinlets.
2484	2486	2	7	4	-	H, f.g. to med.; few small to med. brn. clay-silt incls.; occ. V. small white A stringer.
2486	2488	1	9	1	4	H, clr., med. to V. c.g.; few small to med. white-gray A blebs & stringers; occ. small brn. clay-silt incl.
2488	2493	5	1	2	1	H, med. to c.g., clr. in lower half; few small brn. clay-silt incls. decr. down from 3% at top to 1% at base; occ. small white A stringer.
2493	2496	2	5	55	-	Clay-silt, red-brn., soft and H, f.g. decf. down from 60% at top to 30% at base.
2496	2498	2	3	3	2	H, dr., med.; few small to med. brn. clay-silt incls. & few small white A stringers in lower two-thirds.
2498	2499	1	1	4	1	H, clr., c.g. to med.; few med. to large brn. clay-silt incls. & occ. med. white A stringer.
2499	2507	7	2	-	2	H, V. clr.-pink, f. to c.g.; few small white A stringers incr. down from 1% at top to 3% at base, parting at 2505.1'; occ. V. small brn. clay incl.



